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Report of the

EXPERT CONSULTATION ON THE ACQUISITION OF SOCIO-ECONOMIC INFORMATION IN FISHERIES (with particular reference to small-scale fisheries)

Rome, 30 July to 2 August 1985

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

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PREPARATION OF THIS DOCUMENT

This is the report of an Expert Consultation on the Acquisition of Socio-Economic Information in Fisheries held in Rome, 30 July to 2 August 1985. The Consultation was convened in follow-up to the 1984 FAO World Conference on Fisheries Management and Development, especially with regard to the guidelines and principles included in the Strategy for Fisheries Management and Development endorsed by the Conference. The text was approved by participants at the Consultation at its final session.

ABSTRACT

The need for and use of socio-economic information in fisheries management and development planning are discussed and the difficulties in acquiring such information are reviewed. The report concludes that the choice of the relevant kinds of socio-economic data and of the appropriate approaches to their acquisition will largely depend on the varied development and management decisions faced by fishery administrators and the specific problems and conditions of the fishery or fisheries under consideration. An indicative and tentative list of information requirements is appended and recommendations made regarding desirable follow-up action.

Distribution:

FAO Fisheries Department
FAO Regional Fisheries Officers
Directors of Fisheries
Selector SM
Participants

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OPENING OF THE MEETING

1. The Expert Consultation on the Acquisition of Socio-Economic Information in Fisheries was held in Rome, from 30 July to 2 August 1985. The Consultation was attended by 9 experts invited in their personal capacities, two FAO consultants and nine FAO staff members, some of whom attended intermittently. A list of participants is given in Appendix 1.

AIMS OF THE CONSULTATION

2. The aims of the Expert Consultation were to:

(1) Review and amend a tentative draft manual/guide on the acquisition of socio-economic information for fisheries development planning and management, prepared under contract to FAO by the International Centre for Living Aquatic Resources Management (ICLARM), Manila, Philippines.

(2) Discuss and suggest further actions, which might be taken by FAO, governments and other organisations to improve the acquisition and dissemination of information on the socio-economic aspects of fisheries.

OPENING SPEECH AND ELECTION OF CHAIRMAN

3. Mr B.F. Dada, Director, Fishery Policy and Planning Division, welcomed the participants to the Consultation on behalf of the Director-General of FAO, Mr Edouard Saouma, and the Assistant Director-General, Fisheries Department, Mr J.E. Carroz. He noted that the Consultation was convened at a time when world fisheries are going through a period of adjustment and adaptation to new opportunities and fresh challenges. The new regime of the ocean has provided countries with the basis for the proper management and more beneficial use of their marine resources. At the same time, with many traditionally fished stocks approaching the upper limits of their biological yields, increased attention is being given to the potentials of aquaculture, especially within the context of overall rural development. Renewed attention is also being given to the vital role - and often depressed conditions - of the small-scale fishermen who produce the greater part of the fish supplies in many parts of the developing world.

4. In this time of re-appraisal, Mr Dada said that many developing countries are trying to rationalize their fishery development efforts and allocate more efficiently their natural, human and financial resources. The sound planning of fisheries development and management is thereby of utmost importance, as was stressed by the 1984 FAO World Conference on Fisheries Management and Development. Development planning and management of fisheries are complex tasks, which require accurate and timely data and statistics on all aspects of fisheries, especially on the biological, environmental, economic and social aspects. In general, fisheries administrators have given great attention to biological information, while the acquisition of social and economic information has been somewhat neglected. This has been one of the most serious impediments to effective policy-making and planning, especially in the case of small-scale fisheries.

5. Mr Dada noted that the problems of determining which social and economic data to collect and how to then collect them are greater than in the case of biological data. These problems are particularly difficult in the case of small-scale fisheries, which are highly diverse and complex, each fishery having its own unique features which have to be taken into account when attempting to design sound development plans and management schemes. The experts had been invited to the Consultation to share their experiences on the specific socio-economic conditions in the fisheries of their countries and continents and to help in identifying commonalities and

differences which have to be considered in the preparation of a manual/guide, which can assist countries in the acquisition of socio-economic information in fisheries.

6. After this opening address, Mr Odoi Akersie was unanimously elected as Chairman of the Consultation.

ADOPTION OF THE AGENDA

7. Thanking the participants for his election as Chairman, Mr Akersie proposed that the provisional agenda be adopted. Following the adoption of the agenda (Appendix 2), the Chairman called on Mr Rolf Willmann, Secretary of the Consultation, to initiate the main proceedings of the consultation.

SPECIAL CHARACTERISTICS OF FISHERIES: CONSEQUENCES FOR SOCIO-ECONOMIC DATA NEEDS AND CONSTRAINTS TO THEIR ACQUISITION

8. Dr F. Christy introduced a paper highlighting those characteristics which distinguish fisheries from other natural resource industries and that require special attention by planners. He noted the critical importance of socio-economic information for both development planning and fisheries management and discussed the overall implications for the systematic acquisition of such information.

9. In comparing agriculture and fisheries, attention was drawn to the common property characteristic of fisheries resources which implies that management responsibilities reside with an institution rather than with individual owners as is the most frequent case in agriculture. The uncertainty associated with the output of fisheries operations, limited yields from resources, multiplicity and high perishability of fisheries products, were indicated as special features having important implications in the planning process. The range and amount of information required to make management decisions on economic and social grounds is thus very great. Equally great is the need for information essential to prepare sound national development plans.

10. In the ensuing discussion it was noted that, in addition, some other features pertaining to the small-scale fisheries - as opposed to industrial fisheries - should be mentioned because they create additional constraints on information acquisition, namely the scattered nature and the isolation and remoteness of fishing communities, in certain instances aggravated by the lack of communication infrastructures. Also the high seasonality of the operations and the seasonal migration of the fishermen following that of the resources were indicated as impediments to a systematic acquisition of data.

11. Participants agreed that a manual for the acquisition of socio-economic information in fisheries would be a useful tool to help national departments of fisheries in defining a minimum set of characteristics upon which regular information should be acquired. It was, however, suggested that the usefulness of the manual could be improved if it addressed the different information needs at different stages of fisheries development. Also, recognizing that data collection is a costly venture, some participants expressed the opinion that its value could be increased if the target group included users other than the national fisheries administrators for whom the manual was meant. To this effect, some participants expressed the view that the manual should also provide for information of use in rural development planning. This was felt by others to be impractical because of the limits of responsibilities with which fisheries administrators are normally vested.

12. After these general remarks on the purpose of the manual and its target groups, each participant was asked to describe the type of fisheries data

already systematically collected in his/her country either by their respective fisheries authorities or by other institutions and the main constraints and limitations in information acquisition, especially for small-scale fisheries. The type of fisheries statistical data collected, the frequency, and the method of data acquisition varied greatly from country to country depending mainly upon the perception of the importance of the fisheries sector within the national economy. However, it was apparent that administrators tend to focus on stock assessment and other catch data, for the collection of which they are frequently responsible, while in the case of economic data such as prices, the responsibility is frequently shared with other institutional authorities.

13. Lack of financial resources was indicated as the main constraint to data acquisition; other constraints were the training and supervision of field staff in charge of the data collection; the transportation problems; the lack of cooperation from fishermen owing to suspected misuse of the information (e.g. income taxes) was indicated as affecting the reliability of the data. Some participants gave an account of the national availability of socio-economic data (e.g., fishermen's income levels, employment, fish consumption patterns), responsibility for which is normally scattered among several institutions.

14. A variety of reporting systems were described ranging from daily questionnaires to annual estimates based on 3-week samples, to registers and log-books.

15. Clearly, in the past, economic and social data have been in a lower line of priority compared to biological data within many national fisheries adminstrations. At present, the need to present data in a multi-disciplinary fashion to decision-makers has made evident the importance of acquiring a wider range of fisheries data not confined exclusively to catch and fishing craft and gear.

An example: Fish prices

16. The Consultation then considered an illustrative case of the present weaknesses and difficulties of fisheries statistics with regard to such an essential economic data as fish prices.

17. Mr David Insull, an FAO consultant, described work he was carrying out on the collection of information on trends in the real prices of fish products. This project has been undertaken because there is evidence in several countries that fish prices, generally, have been rising more rapidly than prices of other food products and, perhaps, than inputs into fishing industries. If prices are rising more rapidly then there are important implications for the management of fisheries and for consumption by low-income consumers.

18. The information necessary for constructing output weighted price indices is, however, very difficult to obtain. Only a few countries collect wholesale prices. The definition of wholesale prices is not always clear and quantity weights are not generally available. While many countries collect retail prices for fish, to include within consumer price indices, they may do so for only a few fish products.

19. Very few countries have had systematic collection of ex-vessel prices over a period of years. Where such information is available, quantity weights are also generally available. In some countries, data are collected but not reported and efforts are being made to acquire this information.

20. Several participants mentioned difficulties in acquiring information on ex-vessel prices. One difficulty cited was the strong fluctuations in fish prices between landing places and within one day at the same landing place.

Another difficulty, particularly in tropical zones, is the large number of species entering the market together with the variation in prices for different sizes of the same species and for different qualities of products. It was also pointed out that continuity in collection is essential but difficult to achieve.

21. In some countries, price data are available and has been collected for several years, but has not been collected in a way that permits economic analysis for development planning and management purposes. For example, price data cannot be related to the corresponding fish quantities and qualities transacted or the corresponding flow of the fish from the harvesting to the processing and to the marketing sectors.

22. This raised the critical point that the use of the data must be clearly understood so that it can be collected in the most analytically useful form. Social scientists thus have an essential role in determining which socio-economic data are needed and how they should be collected. Furthermore, it is essential that the value of the information be clearly demonstrated to, and appreciated by, decision-makers, so as to increase demand for social and economic information.

23. It was generally felt that social and economic information had to be related to information from other disciplines since the issues and decisions are multi-disciplinary in nature. It was felt that the manual should contain biological information.

USE OF SOCIO-ECONOMIC INFORMATION IN FISHERIES DEVELOPMENT PLANNING AND MANAGEMENT

24. There was general agreement among the participants that the nature and type of socio-economic information to be acquired will critically depend on the context in which it is to be used. The identification of the use and the users of socio-economic information is therefore one of the most crucial steps in the design of a cost-effective and sound information system. It was also suggested that the demonstration of the application and use of such information in the decision-making process will create greater awareness among adminstrators of the need for acquiring such information. Indeed, in the past, fishery biologists succeeded in promoting the collection of resources data by demonstrating the uses to which they can be put.

25. The use and thus the required types of socio-economic information are manifold and will vary with the types of decisions, which have to be made on different levels in the government hierarchy, in different fisheries situations and stages of their development and for different sub-sectors within the fisheries sector. This great variation in the information needs of different fisheries and of different groups of users was considered one of the main impediments to the preparation of a universally applicable manual on the acquisition of socio-economic information. Given this diversity, any such manual would have to concentrate on those types of information, which are considered critical for a wide range of decisions in fisheries management and development. These key types of information may then have to be supplemented by other specific socio-economic information depending on the particular conditions and issues at hand.

26. The Consultation then endeavoured to identify those types of decisions, which are of general relevance in fisheries management and development. To structure the discussion, it was agreed first to group decisions in two separate although interdependent and interrelated categories, namely (i) decisions in regard to the managing of fully or over-exploited fisheries and (ii) decisions in regard to development of underexploited fisheries. Decisions within each of these two categories were further sub-divided as follows:

I Fisheries Management

- Distribution of income/ wealth
- Employment
- Efficiency
- Food supply and demand

II Fisheries Development

- Improving the standard of living
- Increasing fish production
- Expansion of markets for fish

27. This format was followed during the session, but it was recognised that this dichotomy could be misleading, as frequently there are situations where for example, near-shore resources are fully fished or even over-exploited, while fishing grounds further offshore may still offer scope for increased fish production. In such situations management decisions may have a direct impact on the fully - as well as on the under-exploited fisheries. However, the Consultation agreed that the categorisation was useful from a methodological point of view.

28. It was also recognized that all the sub-categories listed under fisheries management equally apply in the case of fisheries development and vice versa. However, the urgency of addressing issues such as wealth distribution or employment becomes more pronounced in a situation where further growth of the fisheries sector is severely constrained by the limits of fishery resources. Similarly, there are many cases where the development of the fisheries sector is seriously impeded by restricted marketing possibilities for fish and fishery products.

29. The ensuing discussion highlighted the principal types of decisions relevant to fisheries management and development and the main areas of government intervention and policy instruments to implement these decisions.

I. Fisheries Management

(a) Distribution of income/wealth

30. The participants shared the view that decisions in regard to the distribution of income/wealth (which are often closely linked with the distribution of access to fishery resources) are of paramount importance in conditions of heavily exploited fishery resources, where any further expansion of fishing effort by one group of fishermen/owners leads directly to reduced catches and incomes of another group of fishermen. This is of particular relevance in situations where a modern fishery sector with privileged access to high-productive technologies competes with an unorganised and politically weak traditional fishery sector dependent on low-productive fishing methods.

31. The distribution of income/wealth needs to be considered between individuals, communities, states and between fisheries subsectors. The main areas of intervention/policy instruments which have to be addressed in deciding on the distribution of income/wealth are as follows:-1/

- Allocation of fishery resources and types of management regulations (area and seasonal restrictions, licensing, quotas, exclusive use rights, etc)
- Ownership patterns (ownership legislation; investment laws)
- Sharing systems between crew and owners (legislation)
- Technologies (R & D; legislation to restrict the use of certain technologies)
- Taxes, duties and subsidies (direct measures to influence relative prices of inputs and outputs)
- Access to capital (credit schemes; interest rates)
- Price formation and market intervention (laws on sales procedures and product quality; fish export/import regulations; fish price regulations)

- Infrastructure (type, scale and location)
- Institutional arrangements (delegation of management authority; promotion of fishermen's organisations)

32. Information needs in regard to decisions affecting income/wealth distribution refer primarily to the assessment of present income levels of the various segments of the fisheries sector and of the distributional consequences of alternative management techniques and of changes in technology, input and output prices and ownership patterns.

(b) Employment

33. There was general agreement among the participants that all management measures taken by the government to avoid wasteful over-exploitation of the resources should give particular attention to maintaining or creating adequate and remunerative employment opportunities for the fishing families. Management measures, which would lead to a rapid reduction in employment opportunities were thought to be socially and, in many instances, economically undesirable.

34. Apart from the areas of intervention already mentioned above, specific impact on employment will be made, inter alia, by:

- General employment legislation (manning levels, minimum wages)
- Training and education (can improve the mobility of people into other more remunerative occupations)
- Development of alternative employment opportunities (employment programmes; relocation schemes etc.)

35. In the case of fully or over-exploited fisheries, information needs in regard to decisions on employment will go frequently beyond the fisheries sector, as new employment opportunities, especially for artisanal fishing families have to be considered in the context of general rural development. Coordination and good flow of information among the various government offices involved in rural development is thereby of crucial importance.

(c) Efficiency

36. There was a general discussion of the problems of defining efficiency (financial, economic, social and even cultural). Commonly, fisheries which are fully- or over-exploited in biological terms are inefficient in economic terms (i.e. excessive inputs of capital and labour) and often also in social terms (hardship caused by conflicts between competing sections of fishermen/boatowners). In many instances there may also be a trade-off between efficient use of capital and labour, and distributional, employment and cultural considerations.

37. In regard to the efficient allocation of capital, labour and natural resources, the Consultation considered various dimensions, namely (i) between fisheries and other sectors of the economy; (ii) within fisheries over same space or same species and among the various subsectors; and intertemporal allocation.

38. Additional areas of intervention of particular relevance to efficiency (which could be affected by almost all the policy instruments already mentioned) include:-

- Research and development
- Training and technology transfer
- Mobility of labour (as affected by legislation)
- Degree of competition within the industry (as affected by legislation, institutions, incentives to investors)
- Enforcement (monitoring, control and surveillance)

1/ This list and all the following shown under each category do not reflect orders of priority

39. Information needs in regard to efficiency considerations refer primarily to incomes and profitabilities of the different fleets and fishing technologies and of other fisheries subsectors such as supplies industries, fish processing, distribution and marketing. An assessment of the efficient allocation of capital, labour and natural resources between fisheries and other sectors of the economy would primarily concentrate on those industries which produce alternate protein products or which compete for the same inputs (shore and sea space, etc.)

(d) Food supply and demand

40. The participants agreed that where the fishery resources were fully exploited, particular attention should be given to ensuring an adequate and continuing supply of fish or substitute food products to the population. The supply and demand of food (and fish) would be affected particularly by:

- General food policy (alternative foods to fish)
- Import and export regulations
- Price formation and market intervention
- Consumer education (including promotion of substitute food products)
- Food aid
- Fisheries regulations (closed seasons, for example, may temporarily reduce fish supply)

41. Socio-economic information in regard to government interventions affecting food supply and demand refer primarily to the seasonal and spatial availability of fish and alternative protein food products, their relative prices and production costs, as well as consumer preferences and attitudes and price elasticities.

II. Fisheries Development

(a) Improvement of living standards

42. It was pointed out that fisheries development policies which exclusively aim at increasing fish production are frequently insufficient to improve living standards of small-scale fishing communities. Measures to upgrade standards of living, which could be implemented by the fisheries authorities or influenced by them (directly or through actions by other government departments) would include in particular:

- Community infrastructure (schools, water, etc.)
- Promotion of fishermen's organizations and their participation in decision-making
- Provision of social services (health, education, communication, etc)
- Environmental protection (pollution prevention and reduction)
- Safety regulations and social security
- Institutional reform
- Recognition of local traditions and customs, especially in regard to traditional fishing rights and access regulations

43. Socio-economic information needs at the level of individual fishing communities will be highly location-specific and will vary considerably for different socio-political and socio-cultural conditions. Further, as decisions affecting standards of living are often made by government agencies other than fisheries adminstrations, coordination and cooperation in the acquisition of socio-economic information are of paramount importance to prevent duplication of efforts and costs.

(b) Increasing fish production

44. Increasing fish production was considered to be the objective of fisheries development most commonly pursued by governments. Decisions affecting fish production have to be made on various levels and usually encompass aspects of the entire fishery sector from harvesting to marketing. Thus, the possible areas of governmental intervention are manifold, but chief among these are:

- Technology to exploit new or underutilized resources
- Improvement of fish preservation and marketing technologies
- Provision of infrastructure
- Access to capital
- Provision of information to fishermen on the concentration and availability of fishery resources
- Export/import policies
- Taxes and subsidies
- Access to foreign fishing zones
- Joint ventures and agreements with foreign fleets
- Aquaculture development

45. Socio-economic information required for decisions affecting fish production refer on one hand to the relative profitabilities of alternative technological options and their impact on income distribution, employment and nutrition, and on the other hand on social and cultural attitudes and values, which may be affected by technological changes.

(c) Expansion of markets for fish

46. There was general agreement that more rapid progress in fisheries development was often impeded by inadequate markets for fish, even though the potential demand and consumption of fish could be considerably higher than present levels of supply. The reasons for such situations lay often in the lack of preservation, storage and distribution facilities, inadequate price policies and marketing practices and lack of consumer education. Frequently, there is also insufficient information available to the fishing industry on potential export markets, the required product-qualities and export procedures. Major areas of intervention available to governments to expand the markets of fish include:

- Export policy and trade agreements
- Consumer education and market promotion
- Processing, preservation and distribution facilities
- Price policy
- Infrastructure (e.g. roads, water and electricity supply, etc.)
- Marketing institutions (marketing boards and agencies, marketing regulations and quality inspection)
- Subsidies
- Institutional feeding arrangements
- Marketing information systems

47. Information needs for government decisions on fish marketing go frequently beyond the domestic economy and include information on international fish prices and demand and supply relationships. The acquisition of such information can be rather difficult and costly for individual countries, especially when they are newcomers in the field of fish exporting. As regards domestic markets, there is frequently a lack of information on consumer attitudes and preferences and in general on the functioning and efficiency of traditional marketing practices.

48. The Consultation then reviewed the above lists of possible areas of government interventions and identified those areas that were thought to be the primary concern to Departments of Fisheries. An attempt was made to specify in more detail the various kinds of information that would be important for making decisions with regard to these areas of interventions. These are set out in the list presented in the Annex. The Consultation

agreed that the list should be regarded solely as a model for the finalization of a manual rather than a definitive list, and that further work was necessary.

49. The Consultation finally endeavoured to classify each item of information as follows: A) items that should be routinely acquired by Department of Fisheries; B) items that should be routinely collected by non-fishery agencies; and C) items that required special studies, either to acquire the basic data or to produce the information (see Annex).

APPROACHES TO THE ACQUISITION OF INFORMATION

50. Dr B. Lockwood opened the discussion by describing the draft manual guidelines prepared for the Consultation. He noted that the draft was not entirely satisfactory as a manual and that considerable difficulties had been experienced in preparing it. He noted that one of the major problems was the diversity in fishery situations -- diversity among countries in terms of the characteristics of small-scale fisheries, the kinds of decisions being faced, perceptions of needs for information, relationship among sub-sectors, etc.

51. In the preparation of the draft, particular emphasis had been placed on the management aspects and the minimum set of data and information needed for management decisions. For the acquisition of the information the draft suggested a combination of a vessel and gear inventory or system of licensing and a combined variable and fixed costs - revenue - catch - effort survey, continuous for major gear and periodically for minor gear, supplemented by special studies on more complex problems and aspects of fishery management.

52. In the discussion, it was generally agreed that licensing systems provided a basic tool for the acquisition of information, particularly for baseline data on harvesting capacity. It was necessary to be careful, however, to avoid use of licenses for information that would stimulate fishermen to misreport the data. The data to be collected should also be chosen with regard to the specific ways in which it would be used. It is, thus, necessary to be as precise as possible in determining the objectives for the information.

53. It was pointed out that there may be difficulties in the licensing approach in some countries. This occurs where vessels and gear are separately owned so that licences applied only to vessels would not be useful in providing full information on fishing effort. Other problems also exist in determining and defining a fishing unit.

54. With regard to specific surveys, these were agreed to be essential for the acquisition of certain kinds of information that could not be collected on a routine basis. The manual should fully describe how surveys should be conducted. It was pointed out that some countries lacked the skills necessary for enumeration and also for analysis of the results.

55. Censuses and surveys conducted by other government agencies can be helpful in providing socio-economic information on fisheries but frequently fishery departments have little influence on the kinds of data collected by these agencies, and, therefore, the information is often of limited value. Fishery administrators, however, should be fully aware of other sources of information and should make greater efforts to influence the kind of data to be collected. The manual should deal with these aspects and should emphasize the importance of working with non-fishery agencies in the acquisition of information.

56. Generally it was felt that efforts were needed to increase the awareness of governments of the value and importance of social and economic information. It was pointed out that many fishery adminstrations were

largely biology-oriented, reflecting the nature of the problems and the needs perceived in earlier stages of development. It is now becoming increasingly apparent that the issues affect the social and economic welfare of the fishing communities and the consumers.

57. It was recognized that the task of improving the acquisition of social and economic information should be considered as a long-term task requiring persistent attention. It was suggested that one approach, in addition to the preparation of a manual, would be that of preparing small programmes for micro-computers that could demonstrate to decision-makers the ways in which social and economic information could improve the decisions.

CONCLUSIONS, RECOMMENDATIONS AND SUGGESTED FOLLOW-UP ACTIVITIES

58. In the light of the discussions at its preceding sessions, the Consultation finally examined the practical possibilities of developing a manual to assist fishery managers in the collection and analysis of socio-economic information of particular relevance to small-scale fisheries. It also made a number of recommendations regarding further actions which might be taken by governments, FAO and other organizations to improve the collection and dissemination of data on the socio-economic aspects of fisheries.

59. The Consultation noted that the list (see Annex) of the information required to facilitate decision-making illustrated the complexity of the problem of preparing a manual, particularly as the situation, data requirements and collection resources vary considerably between countries and fisheries. It was felt, however, that the list provided a useful framework for the design of a manual or set of guidelines.

60. It was agreed that the preparation of an all embracing, universally applicable manual was neither possible nor desirable. It was also agreed that the preparation of a series of special manuals providing models for specific types of fisheries or particular issues, whilst theoretically desirable, was presently not feasible.

61. The Consultation therefore recommended that FAO should seek to prepare a basic manual, restricted to baseline data. Priority attention in this basic manual would be given to the collection and analysis of those data items categorised in the list formulated by the Consultation as being the prime responsibility of the national fishery ministry or agency. The manual should concentrate on the methodology, design and organisation of the surveys required to obtain such basic data, the methods of data processing and analysis and the presentation and dissemination of socio-economic information. In particular, the manual should be concerned with the improvement of existing national data collection systems. It should be designed to assist administrators and other people involved in fisheries to ask pertinent questions about their data needs which are directly relevant to the main problems of the fishery and it should help to avoid the wastage of financial and other resources upon the collection of data which is merely "interesting" and concentrate on those questions which are essential to the practical understanding of the fishery. The manual should, moreover, provide examples of what the individual data items can be used for, and how they can aid the decision process.

62. At the same time, the manual should draw attention to the need for the thorough exploration of the availability of other types of pertinent data which are collected by other national agencies e.g. national statistical office, planning department, trade department, etc. Such data, often of considerable value for decision-making in fisheries, are frequently collected by other agencies but presently may not be easily accessible to fishery administrations and research institutes. Closer collaboration between the fisheries and other data collection agencies is most desirable,

not only to facilitate accessibility but also to seek, where appropriate, means of improving the relevance to fisheries of the data collected by such other agencies.

63. The Consultation also recommended that this basic manual should consider ways of minimising the costs of data collection and analysis as, in many developing countries, the financial and manpower resources available for such work are very limited. In this respect, attention was drawn to the question of the level of accuracy of many socio-economic data; although the most reliable data possible were required, costs of collection may rise rapidly as greater accuracy is sought.

64. It was agreed that, once a draft manual had been prepared by FAO, it would be desirable to review the draft and relate it to national experiences and situations. In this regard, the members of the Consultation agreed to act jointly and individually as a reviewing group to whom the FAO Secretariat would send the first draft for comment.

65. With regard to the follow-up actions necessary to improve the acquisition and analysis of socio-economic information, the Consultation placed priority emphasis upon the need for training in the techniques of data collection and analysis. Here it felt that FAO had a special and continuing role to play through the organisation of training courses, both for higher level administrators and for enumerators/data collectors, particularly through regional training workshops. In this respect, it was suggested that consideration might be given to the preparation of special computer programmes/ analytical bio-economic models which could be needed in analysing the data. Reference was made to such work already being carried out both by FAO and national agencies.

66. The Consultation also recommended that FAO should continue to explore the feasilbity of publishing, on a regular basis, statistics regarding the socio-economic aspects of fisheries. The Secretariat described the range of socio-economic data already being collected by the Organization. It was noted that, as with the case of data on catches, landings, trade and commodities, FAO was entirely reliant in this respect upon the data provided by governments. The major present problem with regard to socio-economic data was the lack of commonality of definition. The Consultation nevertheless recommended that the Organization continue its efforts to seek the more systematic collection of such data and, where possible, to publish such data on a regular basis.

67. It also recommended that FAO, as a means of improving the acquisition and dissemination of knowledge on socio-economic aspects of fisheries, should prepare an inventory of those engaged in this work and of the studies being undertaken. In this connection, the Secretariat drew attention to the existing ASFIS 1/ - ASFA 2/ products published with the cooperation of FAO. Reference was also made to the Fishery Economics Newsletter, published by the UK Sea Fisheries Authority, to the Common Property Network being developed by the U.S. National Academy of Sciences and to the Southeast Asia network of institutions dealing with social sciences in fisheries being developed by ICLARM.

68. The Consultation finally requested FAO to take all possible steps to encourage governments to place greater emphasis upon, and allocate greater resources to, the study of fishery economics and the social aspects of fisheries development and management. Traditionally, emphasis had been placed by many governments upon biology and resource sciences. With the pressing need for greater attention to management problems and to the improvement and development of small-scale fisheries, governments should

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1/ Aquatic Sciences and Fisheries Information System
2/ Aquatic Sciences and Fisheries Abstracts

pay greater attention to the socio-economic considerations behind fishery development and management policies and programmes.

69. Noting the success and long-term benefits of such fora as the FAO Conference on the Economics of Fisheries (1956), the FAO meeting on Decisions in Fishery Industries (1964), the FAO International Conference on Fisheries Investment (1969) and the IPFC Symposium on the Economic and Social Aspect of Fisheries (1974), it suggested that a valuable step in this direction might be the organisation by FAO of international or regional technical symposia on the socio-economic aspects of fisheries management and development. Such meetings could create greater awareness of the socio-economic aspects of fisheries development and management, facilitate the exchange of experiences and approaches to the acquisition of socio-economic information and its use in the decision-making process and contribute to coordination in the execution of research programmes. At the regional level, such meetings might well be held in association with sessions of regional fishery commissions.

70. The Consultation was closed by Mr M. Fila, Chief, Fishery Development Planning Service, Fishery Policy and Planning Division, who thanked the participants for their attendance and contributions to the Consultation. He noted that the Consultation has resulted in a set of valuable recommendations, which provide a good basis for the planning of the future course of actions required by governments and FAO to improve the acquisition of socio-economic information in fisheries.

ANNEX: INDICATIVE LIST OF INFORMATION REQUIREMENTS FOR A SELECTED SET OF IMPORTANT GOVERNMENT MEASURES AFFECTING THE FISHERIES SECTOR

Legend

A = Information that should be routinely acquired by Departments of Fisheries or fisheries research institutes

B = Information that should be routinely acquired by non-fisheries agencies

C = Information that commonly requires special studies, either to collect basic data or to analyze data available with fisheries and non-fisheries agencies

Management Regulations

Effort (A)

No. of vessels* (A)

- by type*
- by size class*
- by horse-power class/outboard-inboard/petrol-diesel*
- by harbour/landing place*
- by type and quantity of gear (used)*
- by fishing ground

Size of crew (A)
Investment costs of vessel/gear combination (A/C)
Other fixed costs (A/C)
Operating costs (A/C)

Catch (A)

Quantities: (A)

- by species
- by vessel/gear combination
- by landing place/harbour
- by fishing ground/area
- by season
- by disposition/self-consumption
- by waste and trash fish (A/C)

Values: (A)

- by trip
- by vessel/gear combination
- by landing place/harbour
- by season
- by disposition

Ex-vessel prices: (A)

- by species
- by season
- by markets
- by location
- by daily range

Resources: (C)

As far as not obvious from catch and effort statistics

- shared between different vessel/gear combinations
- shared with other countries

Conflicts: (C)

- kinds and frequency of conflicts
- costs of conflicts (individual/national/political)

Taxes/Subsidies/duties:

- on inputs (B)
- on catch value (B)

Ownership patterns (A)

- owner operated
- cooperative ownership
- absentee owner
- company owner

Sharing System: (A/C)

- by vessel/gear combination
- by landing place/region

Opportunity costs of labour: (B/C)

- by qualification
- by location/region

Opportunity costs of capital:

- on informal credit market (C)
- on formal credit market (B)

Population growth (B)

Past trends in immigration/emigration (B)

Past trends in entry into/exit from fisheries (A/C)

Other sources of income (employment) of fishing households by ownership status: (A/B/C)

- type of economic activity
- number of family members involved by sex
- income in cash/kind by type of acitivty and by season
- dependency on fishing for subsistence/food supply

Barriers to exit from fisheries:

- Ownership of property (land, house) (B/C)
- level of indebtedness/savings (B/C)
- level of skills, qualification, education (B/C)
- age strucutre (B)
- caste/ethnical group (B/C)
- level of awareness of other employment opportunities (C)
- level of un- or underemployment in region/location (B/C)

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* These data should be collected during a frame survey and should form the basis for catch assessment surveys and costs and earnings.

Barriers to entry into fishery (apart from regulations):

- caste/ethnical group (B/C)
- skill (A/C)
- traditional forms of management (kinds,effects) (C)

Fish Processing: (A/B/C)

- types and capacities of processing facilities
- investment costs
- number of employees by sex
- income to employees
- income to owners
- ownership pattern
- taxes, duties, subsidies on inputs and outputs

Fish marketing/distribution:

- types of traders (A/B/C)
- number of traders by sex (A/B/C/)
- income by type of trader (C)
- quantity of fish sold

  (i) urban areas by income groups (C)
  (ii) rural areas by income groups (C)
  (iii) export (A/B)

- wholesale prices (A/B)
- retail prices (A/B)
- export prices (A/B)

Input industries (boat-building, net-making): (A/B/C)

- Number of employees by sex
- income to employees
- income to owners
- ownership pattern
- taxes, duties, subsidies on inputs and outputs

Research and development

- amount of un- or under-exploited fishery resources by species and area (C)
- post harvest losses (C)
- technical options/improvements in harvesting, processing and distribution (C)
- infrastructure requirements of technical options (C)
- capital/labour ratios of technical options (C)
- labour productivity of technical options (C)
- training requirements (no. by required qualification) (C)
- requirements in maintenance and repair facilities (C)
- economic efficiency of technical options (C)
- processing yield (C)

In regard to choice and dissemination of technology the following information may be required:

- economic efficiency of present technologies (C)
- level of un- or underemployment (B/C)
- other sources of income/employment of fishing households (A/B/C)
- access to and costs of capital on the formal/informal credit market (B/C)
- opportunity costs of labour (B/C)
- present ownership patterns (and expected changes) (A/B/C)

- present level of incomes (and expected changes) (A/B/C)
- present income distribution/sharing system (and expected changes) (A/B/C)
- present flow of fish (and expected changes) (A/B/C)
- present barriers to entry into/exit from fisheries (and expected changes) (A/B/C)
- present levels of fish prices - ex-vessel; wholesale, retail, export (and expected changes) (A/B/C)

Training

- types of skills required (A/C)
- numbers of people to be trained (A/C)
- present educational standards (B)
- present attitudes, preferences, etc. (C)
- costs of training and extension (A/B/C)

Provision of infrastructure (excluding social infrastructure)

- inventory of present infrastructure

(i) landing facilities (A)
(ii) access roads (B)
(iii) electricity/water supply (B)
(iv) preservation, handling and distribution facilities (A)

- assessment of benefits and costs of providing improved/additional infrastructure (A/B/C)

(i) increased catch/catch revenues
(ii) reduction in waste
(iii) change in incomes
(iv) change in fish flow/distribution
(v) change in fish prices
(vi) change in product quality
(vii) costs of providing and maintaining infrastructure

Fisheries Laws (data requirements will depend on specifities mentioned in the law, e.g. management regulations, marketing regulations, etc.

Taxes/Subsidies/Import and Export Duties (data requirements similar to those mentioned under management regulations and R & D)

- international market prices for inputs and outputs (B/C)

Credit Schemes (information requirements similar to those mentioned under management regulations and R & D)

- present sources of credit (A/B/C)
- access to formal credit market (B/C)
- administrative procedures/requirements to obtain credit on formal credit market (B/C)
- economic, social, cultural/ethnical or family ties on informal credit market (C)
- present level of indebtedness/savings by ownership/household characteristics and by use of credits for: - (C)

(i) investment in fishing implements
(ii) special celebrations
(iii) daily/seasonal basic needs
(iv) investments in other property (land, house) and economic acitivities
(v) operational/working capital

Marketing and product quality regulations

- number and types of traders (A/B/C)
- costs of marketing (C)
- product quality standards/regulations in export markets (A/B)
- fish prices and qualities on beach, wholesale and retail levels (A/B)
- present handling, processing and distribution facilities and practices (A/B/C)
- present flow of fish by species/products (rural/urban by income group, exports) (A/B/C)
- present sales arrangements on beach and wholesale level (number of buyers/sellers, auctioning, price fixing, price negotiations, etc.) (A/B/C)
- economic, social, ethnical, family ties between sellers and buyers (C)
- influence of fishermen's and traders' organisations on fish supply/demand and fish prices (C)

Export and import regulations on fisheries products

- supply and demand of fish and fishery products in domestic market (including prices on retail level) (B/C)
- supply and demand of substitute food items (including prices on retail level) (B/C)
- protein intake in percentage of requirements by income group (B/C)
- product quality standards/requaltions in export markets (A/B)
- product prices (demand and supply) in international markets (B/C)

Negotiating access to foreign zones/markets (this is only relevant for industrial fisheries)

- set of information listed under export/import regulations
- expected catch, catch rates, costs of fishing (including licence fees/royalities) (C)
- legal requirements/regulations of foreign countries which affect operational efficiency, costs, revenues, transfer of profits, etc. (B/C)
- foreign government plans in regard to development of national fishing capacities (C)
- demand/supply and fish prices in foreign countries and/or domestic market (A/C)
- set of information on alternative deployment options of fleet in national zone (see information listed under management regulations and R & D)

Monitoring, control and surveillance

- losses/costs to national fleet/treasury through poaching (C)
- set of information listed under management regulations/R &D for assessing benefits of MCS
- costs of MCS (A/B/C)

Provision of information on availability/concentration of fisheries resources (see management regulations/R & D; impact will be seen in greater operational efficiency e.g. lower costs and/or higher landings/revenues) (A/C)

Fish trade agreements (see export/import regulations)

Quality standards/quality inspection for export (see export/import regulations)

- costs of inspection (A/B/C)

Marketing information system

- basically prices and quantities traded on beach, wholesale and retail levels by species/products/qualities and areas (see above)

Market promotion (consumer education - attitudes/preferences)

- food/eating habits by various personal characteristics such as:- (C)

  (i) income group
  (ii) religion
  (iii) ethnical group
  (iv) location
  (v) sex
  (vi) education, etc.

- marketing network (C)
- prices of fish and fishery products and substitutes (see above)
- information derived from product acceptability tests (C)
- costs of consumer education (C)

Promotion of social organizations/unionization (A/B/C)

- traditional leadership structure/decision-making procedures
- ethnical, religious and occupational composition
- ownership pattern (means of production and other property)
- income distribution
- role of women
- kinship ties
- coherence in interests/objectives
- activities of political parties

Traditional fishing rights/management (C)

- Origin and kinds
- effect on effort reduction/catch
- effect on income distribution
- effect on efficiency
- effect on technological progress
- effect on employment
- effect on entry into/exit from fisheries

Environmental protection (A/B/C)

- social costs of pollution/degradation
- causes/causers of pollution/degradation
- costs of pollution prevention
- distributional consequences of pollution/degradation
- nutritional consequences of pollution/degradation

Appendix 1

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Appendix 2

AGENDA

30 July Tuesday	09.30	Opening address
		Adoption of the Agenda
	10.00	Session I: Special characteristics of fisheries and their consequences for socio-economic information needs
	12.30	Lunch break
	14.15	Session I (continued)
	15.30	Session II Constraints on the acquisition of socio-economic information
	17.15	Adjournment
31 July Wednesday	09.00	Session III: Use of socio-economic information in fisheries development planning and management
	12.30	Lunch break
	14.15	Session IV: Approaches to the collection and analysis of socio-economic data
	17.15	Adjournment
1 August Thursday	09.00	Session IV: (continued)
	10.30	Session V: Dissemination of socio-economic information
	12.30	Lunch break
	14.15	Session VI: Follow-up activities requried to improve acquisition and application of socio-economic information
	17.15	Adjournment
2 August Friday	Morning free	
	15.00	Discussion of conclusions and recommendations and adoption of report
	17.00	Closing

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